

# Enhancing the Resilience of Health Supply Chain Processes for Robust Disaster Response: A Focus on Personal Protective Equipment (PPE)

Musaad Almuthaybiri  
 Prof David Alexander and Dr Yasmine Sabri  
 Institute for Risk and Disaster Reduction, South Wing University College London



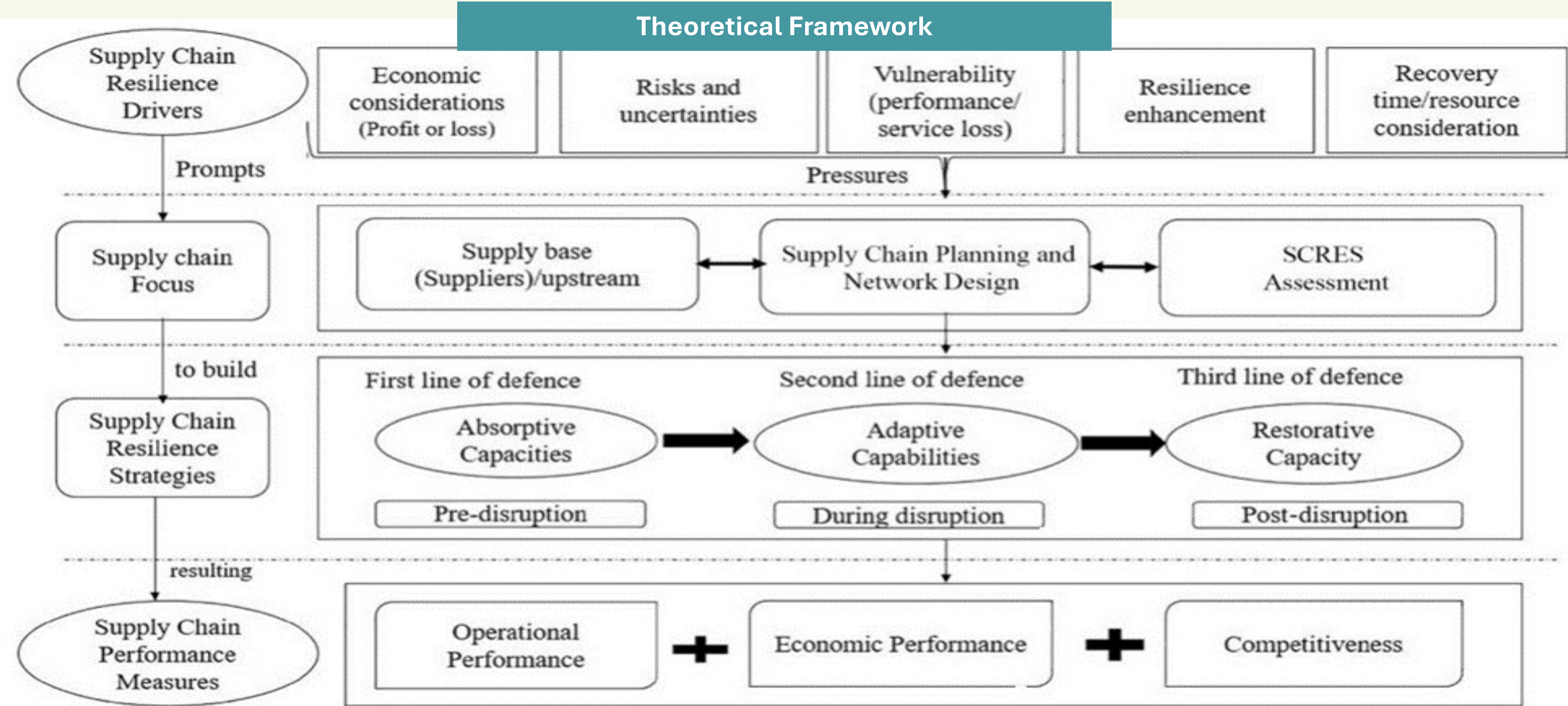
## Research Background

The COVID-19 pandemic exposed significant weaknesses in health supply chains, leading to critical shortages of essential medical supplies like PPE. These disruptions highlighted the need for resilient supply chain processes to ensure continuous availability during disasters. This research focuses on identifying vulnerabilities and developing strategies to enhance health supply chain resilience, ensuring robust disaster response capabilities.

The ability to maintain health supply chain resilience is crucial for effective disaster response globally, particularly as emergencies continue to increase in frequency and severity. Strong health supply chain activities are required, especially in the domain of personal protective equipment (PPE), as the COVID-19 pandemic has brought to light. According to research, in order to create strong health supply chains that guarantee continuous PPE availability in times of emergency and improve overall flexibility and reaction skills, collaboration, and proactive risk management are essential. This will improve the capability of health supply chain processes to adapt and respond effectively (Snyder and Stavins, 2020).

## Research Objectives

1. To identify and analyze the key resilience factors and strategies in health supply chains for PPE.
2. To evaluate the performance of current health supply chain models under the strain of disaster scenarios.
3. To assess the resilience of healthcare supply chain processes for robust disaster response
4. To develop a framework for effective stakeholder collaboration in the health supply chain sector.
5. To propose policy recommendations that could strengthen the resilience of health supply chains for PPE.



## Research Motivation

The urgency to enhance health supply chain resilience has been highlighted by recent crises, such as the COVID-19 pandemic, which revealed critical vulnerabilities and led to severe shortages of essential medical supplies like PPE. This research aims to identify and address these vulnerabilities, improving coordination among stakeholders and developing strategies to ensure continuous availability of critical supplies during disasters. Ultimately, it seeks to safeguard public health and enhance disaster response capabilities, providing practical solutions for policymakers and healthcare organizations.

**Theoretical Significance:** The study's findings will assist in identifying the resilient of healthcare supply chain processes for disaster response.

**Practical Significance:** The study will assist health supply chain managers in managing their logistics and supply partners more effectively and they may also examine the governance models used in interactions among hospitals and their emergency health supply chain managers. In order to coordinate efforts to preserve public health during situations like the pandemic, government agencies, manufacturers and suppliers, healthcare providers, distribution partners, non-governmental organisations, and public health organisations are all essential.

## Primary Research Questions

1. What factors and strategies do disaster managers and supply chain officers understand and perceive as being instrumental to health supply chain resilience (minimize, react, return to a steady state, recovery) during a disaster?
2. What barriers to the efficient carryout of supply chain operations during disaster situations are identified by disaster managers and supply chain officers?
3. How do the existing health supply chain models fail or succeed in responding to sudden increases in demand for PPE during disasters?
4. How can collaboration of stakeholders in the health sector be optimized to ensure that the supply of PPE is sufficient in emergencies?
5. What are the policy implications for enhancing supply chain resilience in the health sector, particularly for PPE?

## Research Methodology

This study will provide a qualitative analysis of the perception of managers about supply chain management which will help us understand their preparedness in case of any calamity. data will be collected on the perception of emergency managers regarding the supply chain in disasters by using qualitative-semi structured interviews covering the 13 regions of the Saudi Ministry of health. This will be followed by a thematic analysis of data gathered in order to obtain the results. Finally, I will discuss the results obtained and draw conclusions from them.

## References

- Fig. 1 Source: Shishodia et al., (2023), "Supply chain resilience: A review, conceptual framework and future research", The International Journal of Logistics Management, Vol. 34 No. 4, pp. 879-908. Jones, L., & Smith, K. (2019). Building resilience in health supply chains: Lessons from the Ebola outbreak. International Journal of Logistics Management, 30(2), 198-214.  
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